



03-12-03

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 98,723-E1)

1645
#7
SB
4/24/03

Application of:

Juan Saus

Serial No.: 10/008,721

Filed: December 7, 2001

For: TNF-Inducible Promoters And Methods
For Using

Art Unit: 1645

Examiner: To be assigned

Commissioner for Patents
Washington, D.C. 20231

TRANSMITTAL LETTER

Sir:

RECEIVED

MAR 14 2003

TECH CENTER 1600/2800

1. We are transmitting herewith the attached papers for the above-identified patent application:

- ☒ Information Disclosure Statement (9 sheets);
- ☒ Information Disclosure Statement Form 1449 (4 sheets);
- ☒ Copy of International Search Report from PCT App. No. PCT/EP01/14412 (6 sheets);
- ☒ 51 cited References
- ☒ Return Receipt Postcard

2. With respect to fees:

☒ No fee is due.

☐ Please charge the total filing fee of \$0.00 to our Deposit Account No. 13-2490.
A duplicate copy of this sheet is enclosed.

3. **CERTIFICATE OF MAILING BY "EXPRESS MAIL" UNDER 37 CFR § 1.10:** The undersigned hereby certifies that this Transmittal Letter and the paper, as described in paragraph 1 hereinabove, are being deposited with the United States Postal Service with sufficient postage as "Express Mail Post Office to Addressee" in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on this 17th day of **March, 2003**. Express Mail No. **EV214228005US**.

By:

David S. Harper
Registration No. 42,636



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 98,723-E1)

PATENT

In the Application of: Saus, J)
)
) Art Unit: 1645
)
Serial No. 10/008721) Examiner: To be assigned
)
Filed: December 7, 2001)
)
Title: TNF-Inducible Promoters and Methods for Using)

RECEIVED
INFORMATION DISCLOSURE STATEMENT

MAR 14 2003

Commissioner for Patents
Washington, D.C. 20231

TECH CENTER 1600/2900

Dear Sir:

Pursuant to 37 C.F.R. Section 1.97 - 1.99, the Applicant wishes to make the following references of record in the above-identified application. This Information Disclosure Statement is in compliance with the continuing duty of candor as set forth in 37 C.F.R. Section 1.56. Copies of the references cited below are enclosed. These references are also listed on the enclosed PTO Form 1449.

In the judgment of the undersigned, portions of the listed references may be material to the Examiner's consideration of the presently pending claims. However, the references have not been reviewed in sufficient detail to make any other representation and, in particular, no representation is intended as to the relative relevance between references, whether cited in this or prior statements. This statement is not a representation that the listed references have effective dates early enough to be "prior art" within the meaning of 35 U.S.C. Section 102 or Section 103.

This Information Disclosure Statement is being filed:

- ☒ within three months of the filing date of a national application; within three months of the date of entry into the national stage as set forth in 37 C.F.R. § 1.491 in an international application; or before the mailing date of a first Office Action on the merits. 37 C.F.R. § 1.97 (b)
- ☐ **after** three months of the filing date of a national application, or the date of entry into the national stage as set forth in 37 C.F.R. § 1.491 in an international application; or **after** the mailing date of a first Office Action on the merits, but **before** the mailing date of a Final Action under 37 C.F.R. § 1.113 or a Notice of Allowance under 37 C.F.R. § 1.311 (whichever occurs first), and includes (37 C.F.R. § 1.97 (c):
- ☐ the Certification under 37 C.F.R. § 1.97(e) (see "Certification" below)

OR

- ☐ the fee of \$180 set forth in 37 C.F.R. § 1.17(p) (see "Fees" below).
- ☐ **after** a Final Action under 37 C.F.R. § 1.113 or a Notice of Allowance under 37 C.F.R. § 1.311 (whichever occurs first), but before, or simultaneously with, the payment of the issue fee, and includes the Certification under 37 C.F.R. § 1.97(e) (see "Certification" below), and the Petition Fee set forth in 37 C.F.R. § 1.17(i) (see "Fees" and "Method of Payment of Fees" below). Applicants hereby petitions for consideration of the Information Disclosure Statement submitted herewith and the accompanying references in examination of the subject patent application.

CERTIFICATION

- ☐ The **undersigned** hereby certifies that each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application not more than three months prior to the filing of the Information Disclosure Statement.
- ☐ The **undersigned** hereby certifies that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application or, to the knowledge of the person signing the certification after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of the Information Disclosure Statement.

FEES

- ☒ No fee is owed by the applicant(s).
☐ The **IDS Fee of \$180.00** under 37 C.F.R. § 1.17(p) is enclosed herewith.

METHOD OF PAYMENT OF FEES

- ☐ Attached is a check in the amount of \$180.00.
☐ Charge Deposit Account No. 13-2490 in the amount of \$. (A duplicate copy of this communication is enclosed for that purpose.)

Please charge any underpayment or credit any overpayment in connection with this communication to Deposit Account No. 13-2490. A duplicate copy of this communication is enclosed for this purpose.

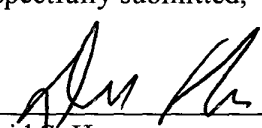
CERTIFICATE OF MAILING AS "EXPRESS MAIL" (37 CFR 1.10)

I hereby certify that this correspondence and all attached paper(s) or fee(s) is being deposited with sufficient postage, with the United States Postal Service as EXPRESS MAIL POST OFFICE TO ADDRESSEE in an envelope addressed to: The Assistant Commissioner for Patents, Washington, D.C. 20231, Attn: RO/US, with sufficient postage, on this 11th day of March, 2003 under Express Mail Certificate No. **EV214228005US**.

Respectfully submitted,

Date: _____

3/11/03



David S. Harper

Registration No. 42,636

Telephone: 312-913-0001
Facsimile: 312-913-0002

McDonnell Boehnen Hulbert & Berghoff
300 South Wacker Drive
Chicago, IL 60606

McDonnell, Boehnen, Hulbert & Berghoff
300 S. Wacker Drive, Suite 3200
Chicago, IL 60606
312-913-0001

U.S. Serial No.: _____
Filing Date: _____

I. Foreign Documents

1. WO 00/50607, published Aug. 31, 2000

II. Other Documents

2. Aggarwal et al. (2001) TNF α in *Cytokine Reference. A compedium of cytokines and other mediators of host defense* Oppenheim, J.J eds. Vol. 1 (Academic Press Ltd., London), pp 413-447.
3. Beck et al. (1992) DNA sequence analysis of 66 kb of the human MHC class II region encoding a cluster of genes for antigen processing. Database Accession Number X66401.
4. Brenner, V., Nyakatura, G., Rosenthal, A. and Platzer, M. (1997) Genomic organization of two novel genes on human Xq28: Compact head to head arrangement of IDH γ and TRAP δ is conserved in rat and mouse. *Genomics* **44**, 8-14.
5. Brenner et al. (1999) Genomic organization of two novel human genes. Database Accession Number Z68129.
6. Brayton et al. (1994) Two genes for de novo purine nucleotide synthesis on human chromosome 4 are closely linked and divergently transcribed. Database Accession Number U00239.
7. Casciola-Rosen, L.A., Anhalt, G. and Rosen, A. (1994) Autoantigens targeted in systemic lupus erythematosus are clustered in two populations of surface structures on apoptotic keratinocytes. *J. Exp. Med.* **179**, 1317-1330.
8. Casciola-Rosen, L., & Rosen, A. (1997) Ultraviolet light-induced keratinocyte apoptosis: a potential mechanism for the induction of skin lesions and autoantibody production in LE. *Lupus* **6**, 175-180.
9. Chen et al. (1984) The functional human dihydrofolate reductase gene. Database Accession Number K01612.
10. Echtenacher B, Falk W, Mannel DA and Krammer PH (1990) Requirement of endogenous Tumor Necrosis Factor/Cachectin for recovery from experimental peritonitis. *J. Immunol.* **145**, 3762-3766.
11. Felmann, M., Bondeson, J., Brennan, F.M., Foxwell, B.M., and Maini, R.N. (1999). The rationale for the current boom in anti-TNF α treatment. Is there an effective means to define therapeutic targets for drugs that provide all the benefits of anti-TNF α and minimise hazards? *Ann. Rheum. Dis.* **58** Suppl1, I27-31.

12. Gavalas, A. and Zalkin, H. (1995) Analysis of the chicken *GPAT/AIRC* bi-directional promoter for *de novo* purine nucleotide synthesis. J. Biol. Chem. **270**, 2403-2410.
13. Gerlach, V.L., Aravind, L., Gotway, G., Schultz, R.A., Koonin, E.V. and Friedberg, E.C.(1999) Human and mouse homologs of *E. coli* DinB (DNA polymerase IV), members of the UmuC/DinB superfamily. Proc. Natl. Acad. Sci. USA **96**, 11922-11927.
14. Gerlach, V.L., Feaver, W.J., Fischhaber, P.L., and Friedberg, E.C.(2001) Purification and characterization of pol κ , a DNA polymerase encoded by the human *DINB1* gene. J. Biol. Chem. **276**, 92-98.
15. Gonzalez M, Schurmans S, Ramos A, Merino R, Lambert P-H and Merino J. (1995) CD4+ T cells determine the ability of spleen cells from F1 hybrid mice to induce neonatal tolerance to alloantigens and autoimmunity in parental mice. Eur. J. Immunol. **25**: 1760-1764.
16. Haines et al. The Multiple Sclerosis Genetics Group (1996) A complete genomic screen for multiple sclerosis underscores a role for the major histocompatibility complex. Nature Genet. **13**, 469-471.
17. Hansen, U. and Sharp, P. (1983) Sequences controlling *in vitro* transcription of SV40 promoters. EMBO J. **2**, 2293-2303.
18. Hansen et al. (2000) Genomic structure and chromosomal localisation of the human Hsp60 and Hsp10 genes. Frequent polymorphisms in the human Hsp60 and Hsp10 genes. Database Accession Number AJ250915.
19. Johnson, R.E., Prakash, S. and Prakash, L.(2000) The human *DINB1* gene encodes the DNA polymerase pol θ . Proc. Natl. Acad. Sci. USA **97**, 3838-3843.
20. Lavia, P., Macleod, D. and Bird, A. (1987) Coincident start sites for divergent transcripts at a randomly selected CpG-rich island of mouse. EMBO J. **6**, 2773-2779.
21. López-Hoyos, M., Carrió, R., Merino, R., Buelta, L., Izui, S., Núñez, G., and Merino, J.(1996). Constitutive expression of Bcl-2 in B cells causes a lethal form of lupuslike autoimmune disease after induction of neonatal tolerance to H-2^b alloantigens. J. Exp. Med. **183**, 2523-2531.
22. López-Hoyos, M., Diez, M.A., Buelta, L., Izui, S., Merino J., and Merino, R.(1999) Overexpression of human Bcl-2 in germinal center B cells induce a new and severe autoimmune syndrome in (C57BL/6 x NZW)F1 mice. Arthritis Rheum. **42**(9):S393.
23. Mariyama, M., Kalluri, R. , Hudson, B.G. and Reeders, S.T. (1992) The α 4(V) chain of basement membrane collagen. J. Biol. Chem. **267**, 1253-1258.

24. Momota, R., Sugimoto, M., Oohashi, T., Kigasawa, K., Yoshioka, H. and Ninomiya, Y.(1998) Two genes, *COL4A3* and *COL4A4* coding for the human $\alpha 3(\text{IV})$ and $\alpha 4(\text{IV})$ collagen chains are arranged head-to-head on chromosome 2q36. *FEBS Lett.* **424**, 11-16.
25. Nadal, M., Moreno, S., Pritchard, M., Preciado, M.A., Estivill, X., and Ramos-Arroyo, M.A.(1997) Down syndrome: characterisation of a case with partial trisomy of chromosome 21 owing to a paternal balanced translocation (15;21) (q26;q22.1) by FISH. *J. Med. Genet.* **34**, 50-54.
26. Needleman, S.B. and Wunsch, C.D. (1970) A general method applicable to the search for similarities in the amino acid sequence of two proteins. *J. Mol. Biol.* **48**, 443-453.
27. Ogi et al. (2001) Homo sapiens genomic sequence containing DINB1 & GPBP gene. Database Accession Number AB036934, XP-002212797.
28. O'Hanlon, T.P., Raben, N., and Miller F.W. (1995) A novel gene oriented in a head-to-head configuration with the human histidyl-tRNA synthetase (HRS) gene encodes an mRNA that predicts a polypeptide homologous to HRS. *Biochem. Biophys. Res. Commun.* **210**, 556-566.
29. Ohashi, E., Bebenek, K., Matsuda, T., Feaver, W.J., Gerlach, V.L., Friedberg, E.C., Ohmori, H. and Kunkel, T.A.(2000) Fidelity and processivity of DNA synthesis by DNA polymerase κ , the product of the human *DINB1* gene. *J. Biol. Chem.* **275**, 39678-39684.
30. Oohashi, T., Ueki, Y., Sugimoto, M. and Ninomiya, Y.(1995). Isolation and structure of the *COL4A6* gene encoding the human $\alpha 6(\text{IV})$ collagen chain and comparison with other type IV collagen genes. *J. Biol. Chem.* **270**, 26863-26867.
31. Pablos, J.L., Santiago, B., Galindo, M., Carreira, P.E., Ballestin, C. and Gomez-Reino, J.J. (1999) Keratinocyte apoptosis and p53 expression in cutaneous lupus and dermatomyositis. *J. Pathol.* **188**, 63-68.
32. Pöschl, E., Pollner, R. and Kühn, K. (1988) The genes for the $\alpha 1(\text{IV})$ and $\alpha 2(\text{IV})$ chains of human basement membrane collagen type IV are arranged head-to-head and separated by a bi-directional promoter of unique structure. *EMBO J.* **7**, 2687-2695.
33. Quinones, S., Bernal, D., García-Sogo, M., Elena, S.F. and Saus, J. (1992) Exon/intron structure of the human $\alpha 3(\text{IV})$ gene encompassing the Goodpasture antigen ($\alpha 3(\text{IV})\text{NC1}$). *J. Biol. Chem.* **267**, 19780-19784.
34. Raya, A., Révert, F., Navarro, S., and Saus, J. (1999) Characterization of a novel type of serine/threonine kinase that specifically phosphorylates the human Goodpasture antigen *J.Biol. Chem.* **274**, 12642-12649.

35. Raya, A., Revert-Ros, F., Martinez-Martinez, P., Navarro, S., Roselló, E., Vieites, B., Granero, F., Forteza, J. and Saus, J. (2000) Goodpasture antigen-binding protein, the kinase that phosphorylates the Goodpasture antigen, is an alternatively spliced variant implicated in autoimmune pathogenesis. *J. Biol. Chem.* **275**, 40392-40399.
36. Remick D, Manohar P, Bolgos G, Rodriguez J, Moldawer L, and Wollenberg G. (1995) Blockade of tumor necrosis factor reduces lipopolysaccharide lethality, but not the lethality of cecal ligation and puncture. *Shock*, **4**, 89-95.
37. Ruddle et al. (2001) Lymphotoxin α and β . in *Cytokine Reference. A compedium of cytokines and other mediators of host defense* Oppenheim, J.J eds. Vol. 1 (Academic Press Ltd., London), pp 436-447.
38. Ryan, M.T., Herd, S.M., Sberna, G., Samuel, M.M., Hoogenraad, N.J. and Hoj, P.B. (1997) The genes encoding mammalian chaperonin 60 and chaperonin 10 are linked head-to-head and share a bi-directional promoter. *Gene* **196**, 9-17.
39. Saus, J. (1998) in *Goodpasture's Syndrome: Encyclopedia of Immunology* 2nd edn. Vol. 2, eds. Delves, P.J., & Roitt, I.M., (Academic Press Ltd., London), pp. 1005-1011.
40. Shimada, T, Fujii, H. and Lin, H. (1989) A 165-base pair sequence between the dihydrofolate reductase gene and the divergently transcribed upstream gene is sufficient for bi-directional transcriptional activity. *J. Biol. Chem.* **264**, 20171-20174.
41. Shinya, E. and Shimada, T. (1994) Identification of two initiator elements in the bi-directional promoter of the human dihydrofolate reductase and mismatch repair protein 1 genes. *Nucleic Acids Res.* **22**, 2143-2149.
42. Sugimoto, M., Oohashi, T., Yoshioka, H., Matsuo, N., and Ninomiya, Y. (1993). cDNA isolation and partial gene structure of the human $\alpha 4(\text{IV})$ collagen chain. *FEBS Lett.* **330**, 122-128.
43. Sugimoto, M., Oohashi, T., and Ninomiya, Y. (1994) The genes *COL4A5* and *COL4A6*, coding for basement membrane collagen chains $\alpha 5(\text{IV})$ and $\alpha 6(\text{IV})$, are located head-to-head in close proximity on chromosome Xq22 and *COL4A6* is transcribed from two alternative promoters. *Proc. Natl. Acad. Sci. USA* **91**, 11679-11683.
44. Tang, M., Pham, P., Shen, X., Taylor, J.-S., O'Donnell, M., Woodgate, R. and Goodman, M.F. (2000) Roles of the *E.coli* DNA polymerases IV and V in lesion-targeted and untargeted SOS mutagenesis. *Nature* **404**, 1014-1018.
45. Tsui, H.W., Mok, S., Souza, L., Marttin, A., and Tsui, F.W.L.(1993) Transcriptional analyses of the gene region that encodes the human histidyl-tRNA synthetase: Identification of a novel bi-directional regulatory element. *Gene* **131**, 201-208.

46. Utz, P.J., and Anderson, P. (1998) Posttranslational protein modifications, apoptosis, and the bypass of tolerance to autoantigens. *Arthritis & Rheum.* **41**, 1152-1160.
47. Wagner, J., Gruz, P., Kim, S.-R., Yamada, M., Matsui, K., Fuchs, R.P.P. and Nohmi, T.(1999) The *dinB* gene encodes a novel *E. coli* DNA polymerase, DNA Pol IV, involved in mutagenesis. *Mol. Cell* **4**, 281-286.
48. Wasylyk, B., Wasylyk, C., Augereau, P. and Chambon, P.(1983) The SV40 72 bp repeat preferentially potentiates transcription starting from proximal natural or substitute promoter elements. *Cell* **32**, 503-514.
49. Wright, K.L., White, L.C., Kelly, A., Beck, S., Trowsdale, J., and Ting, J.P.-Y. (1995) Coordinate regulation of the human *TAP1* and *LMP2* genes from a shared bi-directional promoter. *J. Exp. Med.* **181**, 1459-1471.
50. Zhang, Y., Yuan, F., Xin, H., Wu, X., Rajpal, D.K., Yang,D.and Wang, Z.(2000) Human DNA polymerase κ synthesizes DNA with extraordinarily low fidelity. *Nucleic Acids Res.* **28**, 4147-4156.
51. Zhang, Y., Yuan, F., Wu, X., Wang, M., Rechkooblit, O., Taylor, J.-S., Geacintov, N.E. and Wang, Z.(2000) Error-free and error-prone lesion bypass by human DNA polymerase κ *in vitro*. *Nucleic Acids Res.* **28**, 4138-4146.

III. Discussion

In accordance with MPEP Sections 609 and 707.05(b), it is requested the documents cited be given thorough consideration and that it be cited of record in the prosecution history of the present application by initialing on Form PTO-1449. Such initialing is requested even if the Examiner does not consider a cited document to be sufficiently pertinent to use in a rejection, or otherwise does not consider it to be prior art for any reason, or even if the Examiner does not believe that the guidelines for citation have been fully complied with. This is requested so that each document becomes listed on the face of the patent issuing on the present application.

Date: 3/11, 2003

Respectfully Submitted,

By: 

David Harper

Reg. No. 42,636

McDonnell, Boehnen

Hulbert & Berghoff

300 South Wacker Drive

Chicago, IL 60606

McDonnell, Boehnen, Hulbert & Berghoff
300 S. Wacker Drive, Suite 3200
Chicago, IL 60606
312-913-0001

U.S. Serial No.: _____
Filing Date: _____

FORM PTO-1449
(Rev. 2-32)U.S. Department of Commerce
Patent and Trademark Office

Atty. Docket No.

Serial No.

98,723-E1

10/008721

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use several sheets if necessary)

RECEIVED

MAR 14 2003

Applicant: Saus, J

Filing Date:

December 7, 2001

Group:

1645

U.S. PATENT DOCUMENTS
TECH CENTER 1600/2900

Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate

FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Subclass	Translation Yes No
1.	WO 00/50607	Aug. 31, 2000	PCT			

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc).

2.	Aggarwal et al. (2001) TNF α in <i>Cytokine Reference. A compedium of cytokines and other mediators of host defense</i> Oppenheim, J.J eds. Vol. 1 (Academic Press Ltd., London), pp 413-447.
3.	Beck et al. (1992) DNA sequence analysis of 66 kb of the human MHC class II region encoding a cluster of genes for antigen processing. Database Accession Number X66401
4.	Brenner et al. (1999) Genomic organization of two novel human genes. Database Accession Number Z68129
5.	Brenner, V., Nyakatura, G., Rosenthal, A. and Platzer, M. (1997) Genomic organization of two novel genes on human Xq28: Compact head to head arrangement of IDH γ and TRAP δ is conserved in rat and mouse. <i>Genomics</i> 44, 8-14.
6.	Brayton et al. (1994) Tow genes for de novo purine nucleotide synthesis on human chromosome 4 are closely linked and divergently transcribed. Database Accession Number U00239.
7.	Casciola-Rosen, L.A., Anhalt, G. and Rosen, A. (1994) Autoantigens targeted in systemic lupus erythematosus are clustered in two populations of surface structures on apoptotic keratinocytes. <i>J. Exp. Med.</i> 179, 1317-1330.
8.	Casciola-Rosen, L., & Rosen, A. (1997) Ultraviolet light-induced keratinocyte apoptosis: a potential mechanism for the induction of skin lesions and autoantibody production in LE. <i>Lupus</i> 6, 175-180.
9.	Chen et al. (1984) The functional human dihydrofolate reductase gene. Database Accession Number K01612.
10.	Echtenacher B, Falk W, Mannel DA and Krammer PH (1990) Requirement of endogenous Tumor Necrosis Factor/Cachectin for recovery from experimental peritonitis. <i>J. Immunol.</i> 145, 3762-3766.
11.	Felmann, M., Bondeson, J., Brennan, F.M., Foxwell, B.M., and Maini, R.N. (1999). The rationale for the

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc).

		current boom in anti-TNF α treatment. Is there an effective means to define therapeutic targets for drugs that provide all the benefits of anti-TNF α and minimise hazards? Ann. Rheum. Dis. 58 Suppl1, I27-31.
	12.	Gavalas, A. and Zalkin, H. (1995) Analysis of the chicken <i>GPAT/AIRC</i> bi-directional promoter for <i>de novo</i> purine nucleotide synthesis. J. Biol. Chem. 270 , 2403-2410.
	13.	Gerlach, V.L., Aravind, L., Gotway, G., Schultz, R.A., Koonin, E.V. and Friedberg, E.C. (1999) Human and mouse homologs of <i>E. coli</i> DinB (DNA polymerase IV), members of the UmuC DNA polymerase family. Proc. Natl. Acad. Sci. USA 96 , 11922-11927.
	14.	Gerlach, V.L., Feaver, W.J., Fischhaber, P.L., and Friedberg, E.C. (2001) Purification and characterization of pol κ , a DNA polymerase encoded by the human <i>DINB1</i> gene. J. Biol. Chem. 276 , 92-98.
	15.	Gonzalez M, Schurmans S, Ramos A, Merino R, Lambert P-H and Merino J. (1995) CD4 ⁺ T cells determine the ability of spleen cells from F1 hybrid mice to induce neonatal tolerance to alloantigens and autoimmunity in parental mice. Eur. J. Immunol. 25 : 1760-1764.
	16.	Haines et al. The Multiple Sclerosis Genetics Group (1996) A complete genomic screen for multiple sclerosis underscores a role for the major histocompatibility complex. Nature Genet. 13 , 469-471.
	17.	Hansen, U. and Sharp, P. (1983) Sequences controlling <i>in vitro</i> transcription of SV40 promoters. EMBO J. 2 , 2293-2303.
	18.	Hansen et al. (2000) Genomic structure and chromosomal localisation of the human Hsp60 and Hsp10 genes. Frequent polymorphisms in the human Hsp60 and Hsp10 genes. Database Accession Number AJ250915.
	19.	Johnson, R.E., Prakash, S. and Prakash, L. (2000) The human <i>DINB1</i> gene encodes the DNA polymerase pol θ . Proc. Natl. Acad. Sci. USA 97 , 3838-3843.
	20.	Lavia, P., Macleod, D. and Bird, A. (1987) Coincident start sites for divergent transcripts at a randomly selected CpG-rich island of mouse. EMBO J. 6 , 2773-2779.
	21.	López-Hoyos, M., Carrió, R., Merino, R., Buelta, L., Izui, S., Núñez, G., and Merino, J. (1996). Constitutive expression of Bcl-2 in B cells causes a lethal form of lupuslike autoimmune disease after induction of neonatal tolerance to H-2 ^b alloantigens. J. Exp. Med. 183 , 2523-2531.
	22.	López-Hoyos, M., Diez, M.A., Buelta, L., Izui, S., Merino J., and Merino, R. (1999) Overexpression of human Bcl-2 in germinal center B cells induce a new and severe autoimmune syndrome in (C57BL/6 x NZW)F1 mice. Arthritis Rheum. 42 (9):S393.
	23.	Mariyama, M., Kalluri, R., Hudson, B.G. and Reenders, S.T. (1992) The α 4(V) chain of basement membrane collagen. J. Biol. Chem. 267 , 1253-1258.
	24.	Momota, R., Sugimoto, M., Oohashi, T., Kigasawa, K., Yoshioka, H. and Ninomiya, Y. (1998) Two genes, <i>COL4A3</i> and <i>COL4A4</i> coding for the human α 3(IV) and α 4(IV) collagen chains are arranged head-to-head on chromosome 2q36. FEBS Lett. 424 , 11-16.
	25.	Nadal, M., Moreno, S., Pritchard, M., Preciado, M.A., Estivill, X., and Ramos-Arroyo, M.A. (1997) Down syndrome: characterisation of a case with partial trisomy of chromosome 21 owing to a paternal balanced translocation (15;21) (q26;q22.1) by FISH. J. Med. Genet. 34 , 50-54.
	26.	Needleman, S.B. and Wunsch, C.D. (1970) A general method applicable to the search for similarities in the amino acid sequence of two proteins. J. Mol. Biol. 48 , 443-453.
	27.	Ogi et al. (2001) Homo sapiens genomic sequence containing DINB1 & GPBP gene. Database Accession Number AB036934, XP-002212797.
	28.	O'Hanlon, T.P., Raben, N., and Miller F.W. (1995) A novel gene oriented in a head-to-head configuration with the human histidyl-tRNA synthetase (HRS) gene encodes an mRNA that predicts a

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

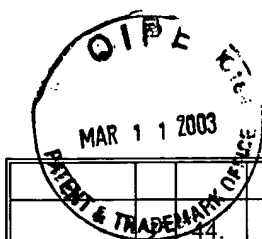
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc).

		polypeptide homologous to HRS. Biochem. Biophys. Res. Commun. 210 , 556-566.
	29.	Ohashi, E., Bebenek, K., Matsuda, T., Feaver, W.J., Gerlach, V.L., Friedberg, E.C., Ohmori, H. and Kunkel, T.A. (2000) Fidelity and processivity of DNA synthesis by DNA polymerase κ , the product of the human <i>DINB1</i> gene. J. Biol. Chem. 275 , 39678-39684.
	30.	Oohashi, T., Ueki, Y., Sugimoto, M. and Ninomiya, Y. (1995). Isolation and structure of the <i>COL4A6</i> gene encoding the human $\alpha 6$ (IV) collagen chain and comparison with other type IV collagen genes. J. Biol. Chem. 270 , 26863-26867.
	31.	Pablos, J.L., Santiago, B., Galindo, M., Carreira, P.E., Ballestin, C. and Gomez-Reino, J.J. (1999) Keratinocyte apoptosis and p53 expression in cutaneous lupus and dermatomyositis. J. Pathol. 188 , 63-68.
	32.	Pöschl, E., Pollner, R. and Kühn, K. (1988) The genes for the $\alpha 1$ (IV) and $\alpha 2$ (IV) chains of human basement membrane collagen type IV are arranged head-to-head and separated by a bi-directional promoter of unique structure. EMBO J. 7 , 2687-2695.
	33.	Quinones, S., Bernal, D., García-Sogo, M., Elena, S.F. and Saus, J. (1992) Exon/intron structure of the human $\alpha 3$ (IV) gene encompassing the Goodpasture antigen ($\alpha 3$ (IV)NC1). J. Biol. Chem. 267 , 19780-19784.
	34.	Raya, A., Revert, F., Navarro, S., and Saus, J. (1999) Characterization of a novel type of serine/threonine kinase that specifically phosphorylates the human Goodpasture antigen J. Biol. Chem. 274 , 12642-12649.
	35.	Raya, A., Revert-Ros, F., Martinez-Martinez, P., Navarro, S., Roselló, E., Vieites, B., Granero, F., Forteza, J. and Saus, J. (2000) Goodpasture antigen-binding protein, the kinase that phosphorylates the Goodpasture antigen, is an alternatively spliced variant implicated in autoimmune pathogenesis. J. Biol. Chem. 275 , 40392-40399.
	36.	Remick D, Manohar P, Bolgos G, Rodriguez J, Moldawer L, and Wollenberg G. (1995) Blockade of tumor necrosis factor reduces lipopolysaccharide lethality, but not the lethality of cecal ligation and puncture. Shock, 4 , 89-95.
	37.	Ruddle et al. (2001) Lymphotoxin α and β . in <i>Cytokine Reference. A compedium of cytokines and other mediators of host defense</i> Oppenheim, J.J eds. Vol. 1 (Academic Press Ltd., London), pp 436-447.
	38.	Ryan, M.T., Herd, S.M., Sberna, G., Samuel, M.M., Hoogenraad, N.J. and Hoj, P.B. (1997) The genes encoding mammalian chaperonin 60 and chaperonin 10 are linked head-to-head and share a bi-directional promoter. Gene 196 , 9-17.
	39.	Saus, J. (1998) in <i>Goodpasture's Syndrome: Encyclopedia of Immunology</i> 2nd edn. Vol. 2, eds. Delves, P.J., & Roitt, I.M., (Academic Press Ltd., London), pp. 1005-1011.
	40.	Shimada, T, Fujii, H. and Lin, H. (1989) A 165-base pair sequence between the dihydrofolate reductase gene and the divergently transcribed upstream gene is sufficient for bi-directional transcriptional activity. J. Biol. Chem. 264 , 20171-20174.
	41.	Shinya, E. and Shimada, T. (1994) Identification of two initiator elements in the bi-directional promoter of the human dihydrofolate reductase and mismatch repair protein 1 genes. Nucleic Acids Res. 22 , 2143-2149.
	42.	Sugimoto, M., Oohashi, T., Yoshioka, H., Matsuo, N., and Ninomiya, Y. (1993). cDNA isolation and partial gene structure of the human $\alpha 4$ (IV) collagen chain. FEBS Lett. 330 , 122-128.
	43.	Sugimoto, M., Oohashi, T., and Ninomiya, Y. (1994) The genes <i>COL4A5</i> and <i>COL4A6</i> , coding for basement membrane collagen chains $\alpha 5$ (IV) and $\alpha 6$ (IV), are located head-to-head in close proximity on chromosome Xq22 and <i>COL4A6</i> is transcribed from two alternative promoters. Proc. Natl. Acad. Sci.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.



OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc).

		USA 91, 11679-11683.
	44.	Tang, M., Pham, P., Shen, X., Taylor, J.-S., O'Donnell, M., Woodgate, R. and Goodman, M.F. (2000) Roles of the <i>E.coli</i> DNA polymerases IV and V in lesion-targeted and untargeted SOS mutagenesis. <i>Nature</i> 404 , 1014-1018.
	45.	Tsui, H.W., Mok, S., Souza, L., Marttin, A., and Tsui, F.W.L.(1993) Transcriptional analyses of the gene region that encodes the human histidyl-tRNA synthetase: Identification of a novel bi-directional regulatory element. <i>Gene</i> 131 , 201-208.
	46.	Itz, P.J., and Anderson, P. (1998) Posttranslational protein modifications, apoptosis, and the bypass of tolerance to autoantigens. <i>Arthritis & Rheum.</i> 41 , 1152-1160.
	47.	Wagner, J., Gruz, P., Kim, S.-R., Yamada, M., Matsui, K., Fuchs, R.P.P. and Nohmi, T.(1999) The <i>dinB</i> gene encodes a novel <i>E. coli</i> DNA polymerase, DNA Pol IV, involved in mutagenesis. <i>Mol. Cell</i> 4 , 281-286.
	48.	Wasylyk, B., Wasylyk, C., Augereau, P. and Chambon, P.(1983) The SV40 72 bp repeat preferentially potentiates transcription starting from proximal natural or substitute promoter elements. <i>Cell</i> 32 , 503-514.
	49.	Wright, K.L., White, L.C., Kelly, A., Beck, S., Trowsdale, J., and Ting, J.P.-Y. (1995) Coordinate regulation of the human <i>TAP1</i> and <i>LMP2</i> genes from a shared bi-directional promoter. <i>J. Exp. Med.</i> 181 , 1459-1471.
	50.	Zhang, Y., Yuan, F., Xin, H., Wu, X., Rajpal, D.K., Yang, D. and Wang, Z.(2000) Human DNA polymerase κ synthesizes DNA with extraordinarily low fidelity. <i>Nucleic Acids Res.</i> 28 , 4147-4156.
	51.	Zhang, Y., Yuan, F., Wu, X., Wang, M., Rechkoblit, O., Taylor, J.-S., Geacintov, N.E. and Wang, Z.(2000) Error-free and error-prone lesion bypass by human DNA polymerase κ <i>in vitro</i> . <i>Nucleic Acids Res.</i> 28 , 4138-4146.

PENDING U.S. APPLICATION DOCUMENTS

Examiner Initial	Application Serial Number	Filing Date	Author	Attorney Docket No.	

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.